

~~free solder, the semiconductor device having a lead on which an Sn-Bi alloy layer comprising 1 to 5 wt% Bi is formed as a surface layer.~~

- 31
Cm1.
2. (Amended) An electronic device according to claim 1, wherein the Pb-free solder is an Sn-Ag-Bi alloy.

Sub
D1

6. (Amended) An electronic device comprising a substrate and a semiconductor device, which are connected with each other by means of a Pb-free solder, the semiconductor device having a lead on which an Sn-Bi alloy plating layer comprising 1 to 5 wt% Bi is directly formed as a surface layer.

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7. (Amended) An electronic device according to claim 6, wherein the Pb-free solder is an Sn-Ag-Bi alloy.

Sub
D2

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11. (Amended) An electronic device comprising a substrate and a semiconductor device, which are connected with each other by means of a Pb-free solder, the semiconductor device having a lead made of Cu or a Cu alloy on which an Sn-Bi alloy layer comprising about 1 to about 5 wt% Bi is directly formed as a surface layer.

B3
Cnd

12. (Amended) An electronic device according to claim 11, wherein the Pb-free solder is an Sn-Ag-Bi alloy.

Sub
D3
B1

19. (Amended) An electronic device comprising a substrate and a semiconductor device, which are connected with each other by means of a Pb-free solder, the semiconductor device having a lead made of an Fe-Ni alloy on which an Sn-Bi alloy plating layer comprising 1 to 5 wt% Bi is directly formed as a surface layer.

20. (Amended) An electronic device according to claim 19, wherein the Pb-free solder is an Sn-Ag-Bi alloy.

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24. (Amended) An electronic device comprising a substrate and a semiconductor device, which are connected with each other by means of a Pb-free solder, the semiconductor device having a lead made of an Fe-Ni alloy on which an Sn-Bi alloy layer comprising about 1 to about 5 wt% Bi is directly formed as a surface layer.

25. (Amended) An electronic device according to claim 24, wherein the Pb-free solder is an Sn-Ag-Bi alloy.

Please add the following new claims to the application:

~~40. An electronic device according to claim 1, wherein said lead is made of a Cu alloy.~~

41. An electronic device according to claim 1, wherein said lead is made of an Fe-Ni alloy.

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42. An electronic device according to claim 1, wherein said lead is made of an Fe-Ni alloy, and a Cu layer is provided between said lead and the Sn-Bi alloy layer.

Sub
DTC
43. An electronic device which comprises a first electrode provided on an electronic component and a second electrode formed on a circuit board, the both electrodes being electrically connected with each other by means of a solder, wherein an Sn-Bi alloy layer containing 1 to 5 wt% Bi is on the first electrode and the Sn-Bi alloy layer is in contact with the solder, which is made of a Pb-free alloy, and the solder is in contact with the second electrode.

44. An electronic device according to claim 43, wherein there is a Cu layer between the first electrode and the Sn-Bi alloy layer.

45. An electronic device according to claim 43, wherein the first electrode is made of a Cu alloy.

46. An electronic device according to claim 43, wherein the first electrode is made of an Fe-Ni alloy.

47. An electronic device according to claim 43, wherein the solder comprises Sn, Ag and Bi.

48. An electronic device according to claim 43, wherein the solder comprises Sn, Ag, Bi, and Cu.

49. An electronic device according to claim 43, wherein the first electrode and the second electrode are bonded with each other by a bonding part which comprises components of Sn, Ag, Bi and Cu.

50. An electronic device which comprises a first electrode provided on an electronic component and a second electrode provided on a circuit board on which the electronic component is mounted, the both electrodes being bonded with each other by means of a solder, wherein an Sn-Bi alloy layer containing 1 to 5 wt% Bi is adjacent the first electrode as a surface layer, and the Sn-Bi alloy

layer is in contact with the solder, made of Pb-free alloy, and the solder is in contact with the second electrode.

51. An electronic device which comprises an electronic component having a first electrode with an Sn-Bi alloy layer, a circuit board with a second electrode, and a bonding part of a Pb-free solder which bonds the first electrode and the second electrode to each other, wherein the Sn-Bi alloy layer contains 1 to 5 wt% Bi and is on the first electrode, and the Pb-free solder is in contact with the second electrode.

52. An electronic device according to claim 51, wherein there is provided a Cu layer between the first electrode and the Sn-Bi alloy layer.

53. An electronic device according to claim 51, wherein the first electrode is made of a Cu alloy.

54. An electronic device according to claim 51, wherein the first electrode is made of an Fe-Ni alloy.

55. An electronic device according to claim 51, wherein the Pb-free solder comprises Sn, Ag and Bi.

56. An electronic device according to claim 51, wherein the Pb-free solder comprises Sn, Ag, Bi and Cu.

57. An electronic device according to claim 51, wherein the bonding part comprises components of Sn, Ag, Bi and Cu.

58. An electronic device according to claim 51, wherein the electronic component is a semiconductor.

59. An electronic device which comprises a semiconductor provided with a first electrode and a second electrode formed on a circuit board, the both electrodes being electrically connected with each other by means of a solder, wherein an Sn-Bi alloy layer containing 1 to 5 wt% Bi is adjacent the first electrode as a surface layer, and the Sn-Bi alloy layer is in contact with the solder, made of a Pb-free alloy, and the solder is in contact with the second electrode.